MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

TWC2751 – MOBILE AND WIRELESS COMMUNICATIONS

(All sections / Groups)

7 OCTOBER 2015
2.30 P.M – 4.30 P.M
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages with 5 Questions only.
2. Attempt FOUR out of FIVE questions. All Questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1 [2+2+4+2+3+2 marks]

(a) Suggest TWO practical solutions in bridging digital divide, in the context of Malaysia.

(b) Give an example to differentiate data rate and throughput.

(c) Describe FOUR responsibilities of Radio Network Controller (RNC).

(d) Describe how signal extraction at receiver when superimposed/modulated radio signal occupies more than a single frequency during transmission.

(e) Give a diagram to illustrate a wireless LAN scenario, where, Node A is not aware that node B is currently busy receiving from node C, and therefore may start its own transmission, causing a collision.

(f) Describe the processes at transmitter and receiver in IR LAN.

QUESTION 2 [4+6+3+2 marks]

(a) Identify TWO differences between reactive protocol and proactive protocol in MANET routing.

(b) Compare IEEE 802.11, IEEE 802.15.1 and IEEE 802.15.4.

(c) Describe the addressing in forming a piconet.

(d) Describe the processes when a Bluetooth device is connecting to a piconet as master node.

QUESTION 3 [2+4+2+2+3+2 marks]

(a) Draw a diagram to illustrate overlapping of frequency between IEEE 802.11 and Bluetooth in 2.4Ghz frequency.

(b) Compare the impact of diffraction and scattering in LOS and non LOS.

(c) Why hexagonal pattern is used in cellular network?

(d) Explain why 160 characters of a single ASCII based SMS could be sent although the maximum length of the SMS message is only 140 byte.

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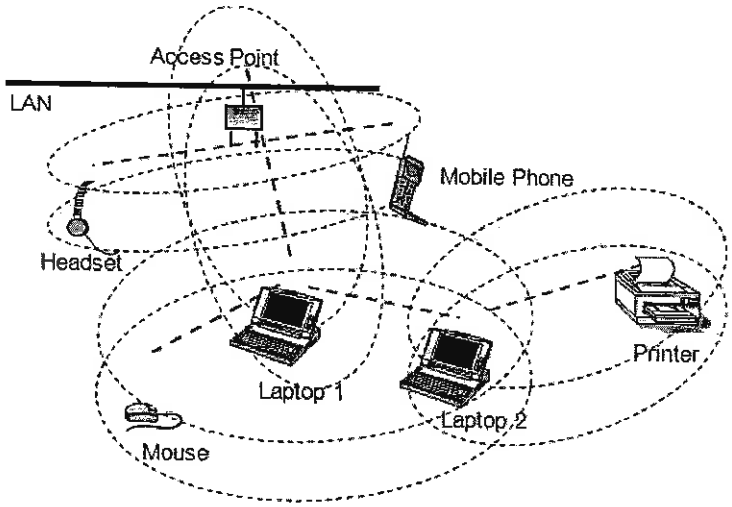
(e) Identify the roles of (master, slave, master/slave) in the figure as below.



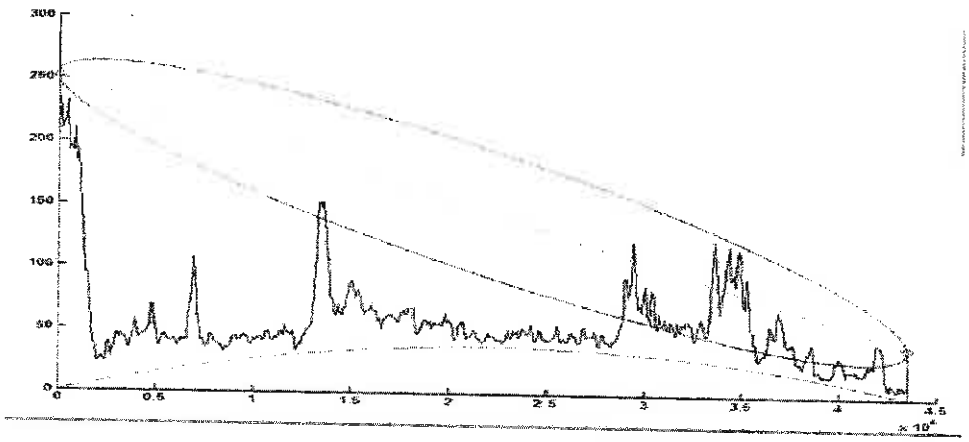
(f) Give the technical technology name for the table below.

	1G	2G	2.5G	3G
European Standard				

QUESTION 4 [4+3+2+4+2 marks]

(a) What are the SMS service center number and sender's number for this SMS?
04912632F5040B910621723634F80000212150617424231649D0DAFDBE83D2A071D80D1297

(b) Figure below shows Fresnel Zone between two points. Do the points able to form a LOS link? If yes, why? If not, propose a suggestion to build LOS in between.



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(b) Describe selective fading and non-selective fading.

(c) Give FOUR points to describe Wireless Session Protocol.

(e) Describe the attenuation effect due to rain.

QUESTION 5 [3+3+3+2+2+2 marks]

(a) Elaborate THREE MAC sublayers for IEEE 802.16.

(b) Describe middleware and its advantages in mobile application platform.

(c) Use a diagram to demonstrate client-Intercept-Server model.

(d) Give TWO mechanisms used by client-Intercept-Server model in minimizing communication cost.

(e) List FOUR known attacks on wireless networks, especially for WLAN.

(f) Propose FOUR security features that are available in 2.5/3G.

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